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1 Virtual machine monitors: Terra: a virtual machine-based platform for trusted computing

Tal Garfinkel, Ben Pfaff, Jim Chow, Mendel Rosenblum, Dan Boneh

October 2003 **Proceedings of the nineteenth ACM symposium on Operating systems principles**

Publisher: ACM Press

Full text available: pdf(140.31 KB) Additional Information: full citation, abstract, references, citings, index terms

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Keywords: VMM, attestation, authentication, trusted computing, virtual machine, virtual machine monitor

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October 2005 **ACM SIGOPS Operating Systems Review , Proceedings of the twentieth ACM symposium on Operating systems principles SOSP '05**, Volume 39 Issue 5

Publisher: ACM Press

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Yasir Zahur, T. Andrew Yang
January 2004 **Journal of Computing Sciences in Colleges**, Volume 19 Issue 3
Publisher: Consortium for Computing Sciences in Colleges
Full text available: pdf(181.24 KB) Additional Information: full citation, abstract, references, index terms

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Full text available: pdf(199.97 KB) Additional Information: full citation, abstract, references

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6 Security as a new dimension in embedded system design: Security as a new dimension in embedded system design
Srivaths Ravi, Paul Kocher, Ruby Lee, Gary McGraw, Anand Raghunathan

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Publisher: ACM Press
Full text available: pdf(209.10 KB) Additional Information: full citation, abstract, references, citings, index terms

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Keywords: *PDAs, architectures, battery life, cryptography, design, design methodologies, digital rights management, embedded systems, performance, security, security processing, security protocols, sensors, software attacks, tamper resistance, trusted computing, viruses*

7 U-Net: a user-level network interface for parallel and distributed computing (includes URL)
T. von Eicken, A. Basu, V. Buch, W. Vogels
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Publisher: ACM Press
Full text available: pdf(1.84 MB) Additional Information: full citation, references, citings, index terms

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Scott E. Hanselman, Mahmoud Pegah
September 2003 **Proceedings of the 31st annual ACM SIGUCCS conference on User services**
Publisher: ACM Press
Full text available: pdf(208.81 KB) Additional Information: full citation, abstract, references, index terms

The Ringling School of Art and Design is a fully accredited four year college of visual art and design with a student population of approximately 1000. The Ringling School has achieved national recognition for its large-scale integration of technology into collegiate visual art and design education and maintains a student to computer ratio of better than two to one. Due to the demand for computing power and the requirement for ease of use, we moved our instructional computer laboratories to the ...

Keywords: Macintosh OS X, NFS, NIS, SSH, fonts, migration, network

9 Design challenges of virtual networks: fast, general-purpose communication
Alan M. Mainwaring, David E. Culler
May 1999 **ACM SIGPLAN Notices , Proceedings of the seventh ACM SIGPLAN symposium on Principles and practice of parallel programming PPoPP '99**, Volume 34 Issue 8
Publisher: ACM Press
Full text available: pdf(1.57 MB) Additional Information: full citation, abstract, references, citings, index terms

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Andy Ju An Wang

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Publisher: ACM Press

Full text available: pdf(346.90 KB) Additional Information: full citation, abstract, references, index terms

Interactive courseware encourages student participation and active learning. Prior research and teaching experience has shown that IT students prefer to learn information security in a hands-on manner. How do we offer information security as a distance learning course while give students the similar hands-on teaching and learning style as we do in a traditional classroom or lab? This paper discusses our experience in developing Web-based multimedia and interactive courseware for an undergraduate ...

Keywords: active learning, information security, interactivity

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David E. Lowell, Yasushi Saito, Eileen J. Samberg

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Publisher: ACM Press

Full text available: pdf(174.01 KB) Additional Information: full citation, abstract, references, citings, index terms

Maintenance is the dominant source of downtime at high availability sites. Unfortunately, the dominant mechanism for reducing this downtime, cluster rolling upgrade, has two shortcomings that have prevented its broad acceptance. First, cluster-style maintenance over many nodes is typically performed a few nodes at a time, mak-ing maintenance slow and often impractical. Second, cluster-style maintenance does not work on single-node systems, despite the fact that their unavailability during mainte ...

Keywords: availability, online maintenance, planned downtime, virtual machines

12 Service infastructure and network management: Architecture and techniques for diagnosing faults in IEEE 802.11 infrastructure networks

Atul Adya, Paramvir Bahl, Ranveer Chandra, Lili Qiu
September 2004 **Proceedings of the 10th annual international conference on Mobile computing and networking**
Publisher: ACM Press
Full text available: pdf(303.82 KB) Additional Information: full citation, abstract, references, index terms

The wide-scale deployment of IEEE 802.11 wireless networks has generated significant challenges for Information Technology (IT) departments in corporations. Users frequently complain about connectivity and performance problems, and network administrators are expected to diagnose these problems while managing corporate security and coverage. Their task is particularly difficult due to the unreliable nature of the wireless medium and a lack of intelligent diagnostic tools for determining the cause ...

Keywords: IEEE 802.11, disconnected clients, fault detection, fault diagnosis, infrastructure wireless networks, rogue APs

13 Putting OSX in an open access lab: (or "The Joy of X")
David L. R. Houston
September 2003 **Proceedings of the 31st annual ACM SIGUCCS conference on User services**
Publisher: ACM Press
Full text available: pdf(211.45 KB) Additional Information: full citation, abstract, index terms

This paper discusses the challenges of putting Apple Macintosh OSX into open access and computer lab environments.

Keywords: Macintosh, OSX, configuration, imaging, integration, lab, labs, maintenance, open access, security, software distribution, workstation

14 A security model for distributed computing
Iliya K. Georgiev, Ivo I. Georgiev
October 2001 **Journal of Computing Sciences in Colleges,** Volume 17 Issue 1
Publisher: Consortium for Computing Sciences in Colleges
Full text available: pdf(47.43 KB) Additional Information: full citation, abstract, references, index terms

This paper presents a multi-tier model for secure computing as a teaching method platform. The security model is based on establishing the trustworthiness and role of each component in a distributed computing environment: trusted users, trusted servers, trusted administrators, untrusted client, untrusted communication media and intermediate systems, etc. The model provides a basis for teaching and for program system design. The security dimensions (both social and technical) can be considered in ...

15 Compilation and run-time systems: DELI: a new run-time control point
Giuseppe Desoli, Nikolay Mateev, Evelyn Duesterwald, Paolo Faraboschi, Joseph A. Fisher
November 2002 **Proceedings of the 35th annual ACM/IEEE international symposium on Microarchitecture**
Publisher: IEEE Computer Society Press
Full text available: pdf(1.27 MB) Publisher Site Additional Information: full citation, abstract, references, citings, index terms

The Dynamic Execution Layer Interface (DELI) offers the following unique capability: it provides fine-grain control over the execution of programs, by allowing its clients to observe and optionally manipulate every single instruction---at run time---just before it runs. DELI accomplishes this by opening up an interface to the layer between the execution of software and hardware. To avoid the slowdown, DELI caches a private copy of the executed code and always runs out of its own private cache.In ...

16 Service-oriented device communications using the *devices profile for web services*

François Jammes, Antoine Mensch, Harm Smit

November 2005 **Proceedings of the 3rd international workshop on Middleware for pervasive and ad-hoc computing MPAC '05**

Publisher: ACM Press

Full text available: pdf(479.82 KB) Additional Information: full citation, abstract, references, index terms

This paper outlines the benefits of adopting service-oriented architectures at the level of communications between resource-constrained embedded devices. It focuses on the usage of the *Devices Profile for Web Services* as the underpinning of such architectures for "smart" devices and discusses an early implementation thereof. It further illustrates how "dumb" or "legacy" devices can be integrated using a gatewaying approach.

Keywords: communication infrastructure, device networking, service-oriented architecture, web service

17 Deployment and testbeds: Enhancement of a WLAN-based internet service in Korea

Youngkyu Choi, Jeongyeup Paek, Sunghyun Choi, Go Woon Lee, Jae Hwan Lee, Hanwook Jung

September 2003 **Proceedings of the 1st ACM international workshop on Wireless mobile applications and services on WLAN hotspots**

Publisher: ACM Press

Full text available: pdf(774.23 KB) Additional Information: full citation, abstract, references, index terms

A wireless LAN (WLAN)-based Internet service, called NESPOT, of Korea Telecom (KT), the biggest telecommunication and Internet service company in Korea, has been operational since early 2002. As the numbers of subscribers and deployed access points (APs) increase, KT has been endeavoring to improve its service quality as well as the network management. In this paper, we introduce a joint effort between Seoul National University (SNU) and KT to achieve it. We have been addressing two major issues ...

Keywords: IEEE 802.11, LAN, hotspot service, wireless internet service provider (WISP)

18 Forth report: Deus Ex Macintosh

Paul Frenger

March 2004 **ACM SIGPLAN Notices**, Volume 39 Issue 3

Publisher: ACM Press

Full text available: pdf(329.67 KB) Additional Information: full citation, references

19 A key recovery attack on the 802.11b wired equivalent privacy protocol (WEP)

Adam Stubblefield, John Ioannidis, Aviel D. Rubin

May 2004 **ACM Transactions on Information and System Security (TISSEC)**, Volume 7 Issue 2

Publisher: ACM Press

Full text available: pdf(207.38 KB) Additional Information: full citation, abstract, references, index terms

In this paper, we present a practical key recovery attack on WEP, the link-layer security protocol for 802.11b wireless networks. The attack is based on a partial key exposure vulnerability in the RC4 stream cipher discovered by Fluhrer, Mantin, and Shamir. This paper describes how to apply this flaw to breaking WEP, our implementation of the attack, and optimizations that can be used to reduce the number of packets required for the attack. We conclude that the 802.11b WEP standard is completely ...

Keywords: Wireless security, wired equivalent privacy

20 OS X: a ten-step program

Crystal R. Miller, Henry R. Bent

October 2004 **Proceedings of the 32nd annual ACM SIGUCCS conference on User services**

Publisher: ACM Press

Full text available: pdf(174.95 KB) Additional Information: full citation, abstract, references, index terms

Updating Oberlin College's eight Macintosh computer labs from the conventional OS 9 of our youth to Apple's newest, sexy, Unix-based OS X has been the embodiment of our institution's historic motto, "Learning and Labor". New challenges, incompatibilities, and excitement have greeted our IT staff most every step of the way. Gone are the days of brightly colored computers, RevRdist, Pcounter, and happy Macs. Today our labs are filled with sleek flat-panel iMacs and Pharos Release Stations while ...

Keywords: Macintosh, OS X, printing, public laboratories, radmind

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Keywords: availability, online maintenance, planned downtime, virtual machines

12 A taxonomy of computer program security flaws

Carl E. Landwehr, Alan R. Bull, John P. McDermott, William S. Choi

September 1994 **ACM Computing Surveys (CSUR)**, Volume 26 Issue 3
Publisher: ACM Press
Full text available: pdf(3.81 MB) Additional Information: full citation, abstract, references, citings, index terms, review

An organized record of actual flaws can be useful to computer system designers, programmers, analysts, administrators, and users. This survey provides a taxonomy for computer program security flaws, with an Appendix that documents 50 actual security flaws. These flaws have all been described previously in the open literature, but in widely separated places. For those new to the field of computer security, they provide a good introduction to the characteristics of security flaws and how they ...

Keywords: error/defect classification, security flaw, taxonomy

13 General storage protection techniques: Securing distributed storage: challenges, techniques, and systems

Vishal Kher, Yongdae Kim

November 2005 **Proceedings of the 2005 ACM workshop on Storage security and survivability StorageSS '05**
Publisher: ACM Press
Full text available: pdf(294.61 KB) Additional Information: full citation, abstract, references, index terms

The rapid increase of sensitive data and the growing number of government regulations that require longterm data retention and protection have forced enterprises to pay serious attention to storage security. In this paper, we discuss important security issues related to storage and present a comprehensive survey of the security services provided by the existing storage systems. We cover a broad range of the storage security literature, present a critical review of the existing solutions, compare ...

Keywords: authorization, confidentiality, integrity, intrusion detection, privacy

14 A secure distributed capability based system (extended abstract)

Howard L. Johnson, John F. Koegel, Rhonda M. Koegel

October 1985 **Proceedings of the 1985 ACM annual conference on The range of computing : mid-80's perspective: mid-80's perspective**
Publisher: ACM Press
Full text available: pdf(1.22 MB) Additional Information: full citation, references, index terms

Keywords: capability architecture, computer security, distributed system security, network encryption

15 Compilation and run-time systems: DELI: a new run-time control point

Giuseppe Desoli, Nikolay Mateev, Evelyn Duesterwald, Paolo Faraboschi, Joseph A. Fisher

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Publisher: IEEE Computer Society Press
Full text available: pdf(1.27 MB) Publisher Site Additional Information: full citation, abstract, references, citings, index terms

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16 Context and Location: Framework for security and privacy in automotive telematics

Sastry Duri, Marco Gruteser, Xuan Liu, Paul Moskowitz, Ronald Perez, Moninder Singh, Jung-Mu Tang

September 2002 **Proceedings of the 2nd international workshop on Mobile commerce**

Publisher: ACM Press

Full text available: pdf(203.71 KB) Additional Information: full citation, abstract, index terms

Automotive telematics may be defined as the information-intensive applications that are being enabled for vehicles by a combination of telecommunications and computing technology. Telematics by its nature requires the capture of sensor data, storage and exchange of data to obtain remote services. In order for automotive telematics to grow to its full potential, telematics data must be protected. Data protection must include privacy and security for end-users, service providers and application pr ...

Keywords: automotive telematics, privacy, privacy policies, security

17 Digital rights management and fair use by design: Fair use, DRM, and trusted computing

John S. Erickson

April 2003 **Communications of the ACM**, Volume 46 Issue 4

Publisher: ACM Press

Full text available: pdf(100.36 KB) html(29.25 KB) Additional Information: full citation, abstract, references, citings, index terms

How can DRM architectures protect historical copyright limitations like fair use while ensuring the security and property interests of copyright owners?

18 Stateful distributed interposition

John Reumann, Kang G. Shin

February 2004 **ACM Transactions on Computer Systems (TOCS)**, Volume 22 Issue 1

Publisher: ACM Press

Full text available: pdf(833.84 KB) Additional Information: full citation, abstract, references, index terms

Interposition-based system enhancements for multitiered servers are difficult to build because important system context is typically lost at application and machine boundaries. For example, resource quotas and user identities do not propagate easily between cooperating services that execute on different hosts or that communicate with each other via intermediary services.
Application-transparent system enhancement is difficult to achieve when such context information is obscured by complex servic ...

Keywords: Distributed computing, component services, distributed context,

multitiered services, operating systems, server consolidation

19 Balancing performance and flexibility with hardware support for network architectures

Ilija Hadžić, Jonathan M. Smith

November 2003 **ACM Transactions on Computer Systems (TOCS)**, Volume 21 Issue 4

Publisher: ACM Press

Full text available: pdf(719.03 KB) Additional Information: full citation, abstract, references, index terms

The goals of performance and flexibility are often at odds in the design of network systems. The tension is common enough to justify an architectural solution, rather than a set of context-specific solutions. The Programmable Protocol Processing Pipeline (P4) design uses programmable hardware to selectively accelerate protocol processing functions. A set of field-programmable gate arrays (FPGAs) and an associated library of network processing modules implemented in hardware are augmented with so ...

Keywords: FPGA, P4, computer networking, flexibility, hardware, performance, programmable logic devices, programmable networks, protocol processing

20 Intercepting mobile communications: the insecurity of 802.11

Nikita Borisov, Ian Goldberg, David Wagner

July 2001 **Proceedings of the 7th annual international conference on Mobile computing and networking**

Publisher: ACM Press

Full text available: pdf(181.52 KB) Additional Information: full citation, abstract, references, citings, index terms

The 802.11 standard for wireless networks includes a Wired Equivalent Privacy (WEP) protocol, used to protect link-layer communications from eavesdropping and other attacks. We have discovered several serious security flaws in the protocol, stemming from mis-application of cryptographic primitives. The flaws lead to a number of practical attacks that demonstrate that WEP fails to achieve its security goals. In this paper, we discuss in detail each of the flaws, the underlying security princip ...

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October 2003 **Proceedings of the nineteenth ACM symposium on Operating systems principles**

Publisher: ACM Press

Full text available: pdf(140.31 KB) Additional Information: full citation, abstract, references, citings, index terms

We present a flexible architecture for trusted computing, called Terra, that allows applications with a wide range of security requirements to run simultaneously on commodity hardware. Applications on Terra enjoy the semantics of running on a separate, dedicated, tamper-resistant hardware platform, while retaining the ability to run side-by-side with normal applications on a general-purpose computing platform. Terra achieves this synthesis by use of a *trusted virtual machine monitor* (TVMM ...

Keywords: VMM, attestation, authentication, trusted computing, virtual machine, virtual machine monitor

2 Pioneer: verifying code integrity and enforcing untampered code execution on legacy systems

Arvind Seshadri, Mark Luk, Elaine Shi, Adrian Perrig, Leendert van Doorn, Pradeep Khosla

October 2005 **ACM SIGOPS Operating Systems Review , Proceedings of the twentieth ACM symposium on Operating systems principles SOSP '05**, Volume 39 Issue 5

Publisher: ACM Press

Full text available: pdf(264.30 KB) Additional Information: full citation, abstract, references, index terms

We propose a primitive, called Pioneer, as a first step towards verifiable code execution on untrusted legacy hosts. Pioneer does not require any hardware support such as secure co-processors or CPU-architecture extensions. We implement Pioneer on an Intel Pentium IV Xeon processor. Pioneer can be used as a basic building block to build security systems. We demonstrate this by building a kernel rootkit detector.

Keywords: dynamic root of trust, rootkit detection, self-check-summing code, software-based code attestation, verifiable code execution

3 Mobile services: Reincarnating PCs with portable SoulPads

Ramón Cáceres, Casey Carter, Chandra Narayanaswami, Mandayam Raghunath

June 2005 **Proceedings of the 3rd international conference on Mobile systems, applications, and services MobiSys '05**

Publisher: ACM Press

Full text available: pdf(199.97 KB) Additional Information: full citation, abstract, references

The ability to walk up to any computer, personalize it, and use it as one's own has long been a goal of mobile computing research. We present *SoulPad*, a new approach based on carrying an auto-configuring operating system along with a suspended virtual machine on a small portable device. With this approach, the computer boots from the device and resumes the virtual machine, thus giving the user access to his personal environment, including previously running computations. *SoulPad* ha ...

4 Devirtualizable virtual machines enabling general, single-node, online maintenance

David E. Lowell, Yasushi Saito, Eileen J. Samberg

October 2004 **ACM SIGARCH Computer Architecture News , ACM SIGOPS Operating Systems Review , ACM SIGPLAN Notices , Proceedings of the 11th international conference on Architectural support for programming languages and operating systems ASPLOS-XI**, Volume 32 , 38 , 39 Issue 5 , 5 , 11

Publisher: ACM Press

Full text available: pdf(174.01 KB) Additional Information: full citation, abstract, references, citings, index terms

Maintenance is the dominant source of downtime at high availability sites. Unfortunately, the dominant mechanism for reducing this downtime, cluster rolling upgrade, has two shortcomings that have prevented its broad acceptance. First, cluster-style maintenance over many nodes is typically performed a few nodes at a time, mak-ing maintenance slow and often impractical. Second, cluster-style maintenance does not work on single-node systems, despite the fact that their unavailability during mainte ...

Keywords: availability, online maintenance, planned downtime, virtual machines

5 An implementation scheme for a virtual machine monitor to be realized on user - microprogrammable minicomputers

B. D. Shriver, J. W. Anderson, L. J. Waguespack, D. M. Hyams, R. A. Bombet

October 1976 **Proceedings of the annual conference**

Publisher: ACM Press

Full text available: pdf(654.60 KB) Additional Information: full citation, abstract, references, citings, index terms

A virtual machine monitor allows several different operating systems to run concurrently on the same machine. This paper presents the description of a virtual machine monitor and its support structure which can be implemented on a microprogrammable minicomputer or a distributed network of such machines. In our approach, all storage, transformational, input, and output resources of the

system are accessed through a mapping mechanism. The design and implementation methodology for an actual re ...

6 Architecture of virtual machines

R. P. Goldberg

March 1973 **Proceedings of the workshop on virtual computer systems**

Full text available: pdf(1.29 MB) Additional Information: full citation, abstract, references, citings, index terms

In this paper we develop a model which represents the addressing of resources by processes executing on a virtual machine. The model distinguishes two maps: the ø-map which represents the map visible to the operating system software running on the virtual machine, and the f-map which is invisible to that software but which is manipulated by the virtual machine monitor running on the real machine. The ø-map maps process names into resource names and the f-map maps virtual resou ...

7 Cellular disco: resource management using virtual clusters on shared-memory multiprocessors

Kinshuk Govil, Dan Teodosiu, Yongqiang Huang, Mendel Rosenblum

August 2000 **ACM Transactions on Computer Systems (TOCS)**, Volume 18 Issue 3

Publisher: ACM Press

Full text available: pdf(287.05 KB) Additional Information: full citation, abstract, references, citings, index terms, review

Despite the fact that large-scale shared-memory multiprocessors have been commercially available for several years, system software that fully utilizes all their features is still not available, mostly due to the complexity and cost of making the required changes to the operating system. A recently proposed approach, called Disco, substantially reduces this development cost by using a virtual machine monitor that laverages the existing operating system technology. In this paper we present a ...

Keywords: fault containment, resource managment, scalable multiprocessors, virtual machines

8 Cellular Disco: resource management using virtual clusters on shared-memory multiprocessors

Kinshuk Govil, Dan Teodosiu, Yongqiang Huang, Mendel Rosenblum

December 1999 **ACM SIGOPS Operating Systems Review , Proceedings of the seventeenth ACM symposium on Operating systems principles SOSP '99**, Volume 33 Issue 5

Publisher: ACM Press

Full text available: pdf(1.93 MB) Additional Information: full citation, abstract, references, citings, index terms

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9 EASY—an operating system for the QM-1

Charles W. Flink

September 1977 **ACM SIGMICRO Newsletter , Proceedings of the 10th annual workshop on Microprogramming MICRO 10**, Volume 8 Issue 3

Publisher: IEEE Press, ACM Press

Full text available: pdf(733.19 KB) Additional Information: full citation, abstract, references, citings, index terms

The Emulation Aid SYstem is a virtual machine monitor for the Nanodata QM-1 microprogrammable computer. The system is designed to provide the user with an interactive interface for the development and subsequent use of emulations on the QM-1. EASY provides integrated support for: 1) interactive control of multiple, concurrently resident, virtual computers implemented via emulation, 2) input/output from emulations (virtual I/O) to the various real peripherals of the QM-1, and 3) diagnostic d ...

Keywords: Emulation, Intermediate language machines, Microprogramming, Nanodata QM-1, Software engineering, Virtual machine monitors, Virtual machines

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Your search for **+"extensible firmware" +vmm** did not return any results.

You may want to try an Advanced Search for additional options.

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- Enter your search terms in lower case with a space between the terms.

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  ```

  You can also enter a full question or concept in plain language.

  ```
  Where are the sales offices?
  ```

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  ```
  John Colter, Netscape Navigator
  ```

- Enclose a phrase in double quotes to search for that exact phrase.

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  ```

- Narrow your searches by using a + if a search term must appear on a page.

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  ```

- Exclude pages by using a - if a search term must not appear on a page.

  ```
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  ```

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Relevance scale

1 Helper threads via virtual multithreading on an experimental itanium® 2 processor-based platform

Perry H. Wang, Jamison D. Collins, Hong Wang, Dongkeun Kim, Bill Greene, Kai-Ming Chan, Aamir B. Yunus, Terry Sych, Stephen F. Moore, John P. Shen

October 2004 **ACM SIGPLAN Notices , ACM SIGOPS Operating Systems Review , ACM SIGARCH Computer Architecture News , Proceedings of the 11th international conference on Architectural support for programming languages and operating systems ASPLOS-XI**, Volume 39 , 38 , 32 Issue 11 , 5 , 5

Publisher: ACM Press

Helper threading is a technology to accelerate a program by exploiting a processor's multithreading capability to run ``assist'' threads. Previous experiments on hyper-threaded processors have demonstrated significant speedups by using helper threads to prefetch hard-to-predict delinquent data accesses. In order to apply this technique to processors that do not have built-in hardware support for multithreading, we introduce virtual multithreading (VMT), a novel form of switch-on-event user-level ...

Keywords: DB2 database, PAL, cache miss prefetching, helper thread, itanium processor, multithreading, switch-on-event

Results 1 - 1 of 1

Terms used
firmware legacy vmm vm security authenticate authentication

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Relevance scale

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Tal Garfinkel, Ben Pfaff, Jim Chow, Mendel Rosenblum, Dan Boneh

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4 Wireless LAN security and laboratory designs

Yasir Zahur, T. Andrew Yang

January 2004 **Journal of Computing Sciences in Colleges**, Volume 19 Issue 3

Publisher: Consortium for Computing Sciences in Colleges

Full text available: pdf(181.24 KB) Additional Information: full citation, abstract, references, index terms

For the past couple of years, increasing number of wireless local area networks (WLANs), based on the IEEE 802.11 protocols, have been deployed in various types of locations, including homes, schools, airports, business offices, government buildings, military facilities, coffee shops, book stores, as well as many other venues. One of the primary advantages offered by WLAN is its ability to provide untethered connectivity to portable devices, such as wireless laptops and PDAs. In some remote comm ...

5 Securing wireless applications: ESCORT: a decentralized and localized access control system for mobile wireless access to secured domains

Jiejun Kong, Shirshanka Das, Edward Tsai, Mario Gerla

September 2003 **Proceedings of the 2003 ACM workshop on Wireless security**

Publisher: ACM Press

Full text available: pdf(401.72 KB) Additional Information: full citation, abstract, references, index terms

In this work we design and implement ESCORT, a *backward compatible*, *efficient*, and *secure* access control system, to facilitate mobile wireless access to secured wireless LANs. In mobile environments, a mobile guest may frequently roam into foreign domains while demanding critical network services. ESCORT provides instant yet secure access to the mobile guest based on the concept of "*escort*", which refers to a special network object with four distinct properties: (1) T ...

Keywords: decentralized access control, identity privacy, location privacy, mobile privacy, wireless security

6 Service infastructure and network management: Architecture and techniques for diagnosing faults in IEEE 802.11 infrastructure networks

Atul Adya, Paramvir Bahl, Ranveer Chandra, Lili Qiu

September 2004 **Proceedings of the 10th annual international conference on Mobile computing and networking**

Publisher: ACM Press

Full text available: pdf(303.82 KB) Additional Information: full citation, abstract, references, index terms

The wide-scale deployment of IEEE 802.11 wireless networks has generated significant challenges for Information Technology (IT) departments in corporations. Users frequently complain about connectivity and performance problems, and network administrators are expected to diagnose these problems while managing corporate security and coverage. Their task is particularly difficult due to the unreliable nature of the wireless medium and a lack of intelligent diagnostic tools for determining the cause ...

Keywords: IEEE 802.11, disconnected clients, fault detection, fault diagnosis, infrastructure wireless networks, rogue APs

7 Network protocols: State based key hop protocol: a lightweight security protocol for wireless networks

Stephen Michell, Kannan Srinivasan

October 2004 **Proceedings of the 1st ACM international workshop on Performance evaluation of wireless ad hoc, sensor, and ubiquitous networks**

Publisher: ACM Press

Full text available: pdf(293.45 KB) Additional Information: full citation, abstract, references, index terms

State Based Key Hop (SBKH) protocol provides a strong, lightweight encryption scheme for battery operated devices, such as the sensors in a wireless sensor network, as well as small office home office (SOHO) users. Although SBKH can be applied to many underlying protocols, in this paper, we focus on integrating SBKH with 802.11. Hence we compare SBKH with other 802.11 security protocols and show that SBKH eliminates all the issues with wired equivalent privacy (WEP) protocol, using the existing ...

Keywords: computer network security, low power security, state based encryption, wireless security, wireless sensor network security

8 A security model for distributed computing

Iliya K. Georgiev, Ivo I. Georgiev

October 2001 **Journal of Computing Sciences in Colleges**, Volume 17 Issue 1

Publisher: Consortium for Computing Sciences in Colleges

Full text available: pdf(47.43 KB) Additional Information: full citation, abstract, references, index terms

This paper presents a multi-tier model for secure computing as a teaching method platform. The security model is based on establishing the trustworthiness and role of each component in a distributed computing environment: trusted users, trusted servers, trusted administrators, untrusted client, untrusted communication media and intermediate systems, etc. The model provides a basis for teaching and for program system design. The security dimensions (both social and technical) can be considered in ...

9 Security as a new dimension in embedded system design: Security as a new dimension in embedded system design

Srivaths Ravi, Paul Kocher, Ruby Lee, Gary McGraw, Anand Raghunathan

June 2004 **Proceedings of the 41st annual conference on Design automation**

Publisher: ACM Press

Full text available: pdf(209.10 KB) Additional Information: full citation, abstract, references, citings, index terms

The growing number of instances of breaches in information security in the last few years has created a compelling case for efforts towards secure electronic systems. Embedded systems, which will be ubiquitously used to capture, store, manipulate, and access data of a sensitive nature, pose several unique and interesting security challenges. Security has been the subject of intensive research in the areas of cryptography, computing, and networking. However, despite these efforts, *security is ...*

***Keywords**: PDAs, architectures, battery life, cryptography, design, design methodologies, digital rights management, embedded systems, performance, security, security processing, security protocols, sensors, software attacks, tamper resistance, trusted computing, viruses*

10 Design challenges of virtual networks: fast, general-purpose communication

Alan M. Mainwaring, David E. Culler

May 1999 **ACM SIGPLAN Notices , Proceedings of the seventh ACM SIGPLAN symposium on Principles and practice of parallel programming PPoPP '99**, Volume 34 Issue 8

Publisher: ACM Press

Full text available: pdf(1.57 MB) Additional Information: full citation, abstract, references, citings, index terms

Virtual networks provide applications with the illusion of having their own dedicated, high-performance networks, although network interfaces posses limited, shared resources. We present the design of a large-scale virtual network system and examine the integration of communication programming interface, system resource management, and network interface operation. Our implementation on a cluster of 100 workstations quantifies the impact of virtualization on small message latencies and throughput ...

Keywords: application programming interfaces, direct network access, high-performance clusters, protocol architecture and implementation, system resource management, virtual networks

11 Service-oriented device communications using the *devices profile for web services*

François Jammes, Antoine Mensch, Harm Smit

November 2005 **Proceedings of the 3rd international workshop on Middleware for pervasive and ad-hoc computing MPAC '05**

Publisher: ACM Press

Full text available: pdf(479.82 KB) Additional Information: full citation, abstract, references, index terms

This paper outlines the benefits of adopting service-oriented architectures at the level of communications between resource-constrained embedded devices. It focuses on the usage of the *Devices Profile for Web Services* as the underpinning of such architectures for "smart" devices and discusses an early implementation thereof. It further illustrates how "dumb" or "legacy" devices can be integrated using a gatewaying approach.

Keywords: communication infrastructure, device networking, service-oriented architecture, web service

12 Deployment and testbeds: Enhancement of a WLAN-based internet service in Korea

Youngkyu Choi, Jeongyeup Paek, Sunghyun Choi, Go Woon Lee, Jae Hwan Lee, Hanwook Jung

September 2003 **Proceedings of the 1st ACM international workshop on Wireless mobile applications and services on WLAN hotspots**

Publisher: ACM Press

Full text available: pdf(774.23 KB) Additional Information: full citation, abstract, references, index terms

A wireless LAN (WLAN)-based Internet service, called NESPOT, of Korea Telecom (KT), the biggest telecommunication and Internet service company in Korea, has been operational since early 2002. As the numbers of subscribers and deployed access points (APs) increase, KT has been endeavoring to improve its service quality as well as the network management. In this paper, we introduce a joint effort between Seoul National University (SNU) and KT to achieve it. We have been addressing two major issues ...

Keywords: IEEE 802.11, LAN, hotspot service, wireless internet service provider (WISP)

13 Devirtualizable virtual machines enabling general, single-node, online maintenance

David E. Lowell, Yasushi Saito, Eileen J. Samberg

October 2004 **ACM SIGARCH Computer Architecture News , ACM SIGOPS Operating Systems Review , ACM SIGPLAN Notices , Proceedings of the 11th international conference on Architectural support for programming languages and operating systems ASPLOS-XI**, Volume 32 , 38 , 39 Issue 5 , 5 , 11

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Full text available: pdf(174.01 KB) Additional Information: full citation, abstract, references, citings, index terms

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Keywords: availability, online maintenance, planned downtime, virtual machines

14 Posters: DRKH: dynamic re-keying with key hopping

Ahmad M. Kholaif, Magda B. Fayek, Hussein S. Eissa, Hoda A. Baraka

October 2005 **Proceedings of the 2nd ACM international workshop on Performance evaluation of wireless ad hoc, sensor, and ubiquitous networks PE-WASUN '05**

Publisher: ACM Press

Full text available: pdf(174.47 KB) Additional Information: full citation, abstract, references, index terms

In this paper, we present Dynamic Re-keying with Key Hopping (DRKH) encryption protocol that uses RC4 encryption technique to ensure a strong security level with the advantage of low execution cost compared to other IEEE 802.11 security schemes.

Keywords: WLAN security, authentication, dynamic re-keying, key hopping, low power devices

15 Putting OSX in an open access lab: (or "The Joy of X")

David L. R. Houston

September 2003 **Proceedings of the 31st annual ACM SIGUCCS conference on User services**

Publisher: ACM Press

Full text available: pdf(211.45 KB) Additional Information: full citation, abstract, index terms

This paper discusses the challenges of putting Apple Macintosh OSX into open access and computer lab environments.

Keywords: Macintosh, OSX, configuration, imaging, integration, lab, labs, maintenance, open access, security, software distribution, workstation

16 A key recovery attack on the 802.11b wired equivalent privacy protocol (WEP)

Adam Stubblefield, John Ioannidis, Aviel D. Rubin

May 2004 **ACM Transactions on Information and System Security (TISSEC)**, Volume 7 Issue 2

Publisher: ACM Press

Full text available: pdf(207.38 KB) Additional Information: full citation, abstract, references, index terms

In this paper, we present a practical key recovery attack on WEP, the link-layer security protocol for 802.11b wireless networks. The attack is based on a partial key exposure vulnerability in the RC4 stream cipher discovered by Fluhrer, Mantin, and Shamir. This paper describes how to apply this flaw to breaking WEP, our implementation of the attack, and optimizations that can be used to reduce the number of packets required for the attack. We conclude that the 802.11b WEP standard is completely ...

Keywords: Wireless security, wired equivalent privacy

17 Macintosh OS X: a smooth migration

Scott E. Hanselman, Mahmoud Pegah

September 2003 **Proceedings of the 31st annual ACM SIGUCCS conference on User services**

Publisher: ACM Press

Full text available: pdf(208.81 KB) Additional Information: full citation, abstract, references, index terms

The Ringling School of Art and Design is a fully accredited four year college of visual art and design with a student population of approximately 1000. The Ringling School has achieved national recognition for its large-scale integration of technology into collegiate visual art and design education and maintains a student to computer ratio of better than two to one. Due to the demand for computing power and the requirement for ease of use, we moved our instructional computer laboratories to the ...

Keywords: Macintosh OS X, NFS, NIS, SSH, fonts, migration, network

18 Auditing wi-fi protected access (WPA) pre-shared key mode
John L. MacMichael
September 2005 **Linux Journal**, Volume 2005 Issue 137
Publisher: Specialized Systems Consultants, Inc.
Full text available: html(20.06 KB) Additional Information: full citation, abstract, index terms

Don't worry about the insecurities of WEP-we have WPA. What? WPA can be cracked too? D'oh!

19 Security: Web-based interactive courseware for information security
Andy Ju An Wang
October 2005 **Proceedings of the 6th conference on Information technology education SIGITE '05**
Publisher: ACM Press
Full text available: pdf(346.90 KB) Additional Information: full citation, abstract, references, index terms

Interactive courseware encourages student participation and active learning. Prior research and teaching experience has shown that IT students prefer to learn information security in a hands-on manner. How do we offer information security as a distance learning course while give students the similar hands-on teaching and learning style as we do in a traditional classroom or lab? This paper discusses our experience in developing Web-based multimedia and interactive courseware for an undergraduate ...

Keywords: active learning, information security, interactivity

20 U-Net: a user-level network interface for parallel and distributed computing (includes URL)
T. von Eicken, A. Basu, V. Buch, W. Vogels
December 1995 **ACM SIGOPS Operating Systems Review , Proceedings of the fifteenth ACM symposium on Operating systems principles SOSP '95**, Volume 29 Issue 5
Publisher: ACM Press
Full text available: pdf(1.84 MB) Additional Information: full citation, references, citings, index terms

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Keywords: *PDAs, architectures, battery life, cryptography, design, design methodologies, digital rights management, embedded systems, performance, security, security processing, security protocols, sensors, software attacks, tamper resistance, trusted computing, viruses*

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Publisher: ACM Press

Full text available: pdf(174.01 KB) Additional Information: full citation, abstract, references, citings, index terms

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Publisher: Kluwer Academic Publishers

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Eric Biederman

December 2001 **Linux Journal**, Volume 2001 Issue 92

Publisher: Specialized Systems Consultants, Inc.

Full text available: html(16.22 KB) Additional Information: full citation, index terms

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Marc Olano, Kurt Akeley, John C. Hart, Wolfgang Heidrich, Michael McCool, Jason L. Mitchell, Randi Rost

August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes GRAPH '04**

Publisher: ACM Press

Full text available: pdf(7.39 MB) Additional Information: full citation, abstract

Real-time procedural shading was once seen as a distant dream. When the first version of this course was offered four years ago, real-time shading was possible, but only with one-of-a-kind hardware or by combining the effects of tens to hundreds of rendering passes. Today, almost every new computer comes with graphics hardware capable of interactively executing shaders of thousands to tens of thousands of instructions. This course has been redesigned to address today's real-time shading capabili ...

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1 Virtual machine monitors: Terra: a virtual machine-based platform for trusted computing

Tal Garfinkel, Ben Pfaff, Jim Chow, Mendel Rosenblum, Dan Boneh

October 2003 **Proceedings of the nineteenth ACM symposium on Operating systems principles**

Publisher: ACM Press

Full text available: pdf(140.31 KB) Additional Information: full citation, abstract, references, citings, index terms

We present a flexible architecture for trusted computing, called Terra, that allows applications with a wide range of security requirements to run simultaneously on commodity hardware. Applications on Terra enjoy the semantics of running on a separate, dedicated, tamper-resistant hardware platform, while retaining the ability to run side-by-side with normal applications on a general-purpose computing platform. Terra achieves this synthesis by use of a *trusted virtual machine monitor* (TVMM ...

Keywords: VMM, attestation, authentication, trusted computing, virtual machine, virtual machine monitor

2 Pioneer: verifying code integrity and enforcing untampered code execution on legacy systems

Arvind Seshadri, Mark Luk, Elaine Shi, Adrian Perrig, Leendert van Doorn, Pradeep Khosla

October 2005 **ACM SIGOPS Operating Systems Review , Proceedings of the twentieth ACM symposium on Operating systems principles SOSP '05**, Volume 39 Issue 5

Publisher: ACM Press

Full text available: pdf(264.30 KB) Additional Information: full citation, abstract, references, index terms

We propose a primitive, called Pioneer, as a first step towards verifiable code execution on untrusted legacy hosts. Pioneer does not require any hardware support such as secure co-processors or CPU-architecture extensions. We implement Pioneer on an Intel Pentium IV Xeon processor. Pioneer can be used as a basic building block to build security systems. We demonstrate this by building a kernel rootkit detector.

Keywords: dynamic root of trust, rootkit detection, self-check-summing code, software-based code attestation, verifiable code execution

3 Mobile services: Reincarnating PCs with portable SoulPads

Ramón Cáceres, Casey Carter, Chandra Narayanaswami, Mandayam Raghunath

June 2005 **Proceedings of the 3rd international conference on Mobile systems, applications, and services MobiSys '05**

Publisher: ACM Press

Full text available: pdf(199.97 KB) Additional Information: full citation, abstract, references

The ability to walk up to any computer, personalize it, and use it as one's own has long been a goal of mobile computing research. We present *SoulPad*, a new approach based on carrying an auto-configuring operating system along with a suspended virtual machine on a small portable device. With this approach, the computer boots from the device and resumes the virtual machine, thus giving the user access to his personal environment, including previously running computations. *SoulPad* ha ...

4 Wireless LAN security and laboratory designs

Yasir Zahur, T. Andrew Yang

January 2004 **Journal of Computing Sciences in Colleges**, Volume 19 Issue 3

Publisher: Consortium for Computing Sciences in Colleges

Full text available: pdf(181.24 KB) Additional Information: full citation, abstract, references, index terms

For the past couple of years, increasing number of wireless local area networks (WLANs), based on the IEEE 802.11 protocols, have been deployed in various types of locations, including homes, schools, airports, business offices, government buildings, military facilities, coffee shops, book stores, as well as many other venues. One of the primary advantages offered by WLAN is its ability to provide untethered connectivity to portable devices, such as wireless laptops and PDAs. In some remote comm ...

5 Security as a new dimension in embedded system design: Security as a new dimension in embedded system design

Srivaths Ravi, Paul Kocher, Ruby Lee, Gary McGraw, Anand Raghunathan

June 2004 **Proceedings of the 41st annual conference on Design automation**

Publisher: ACM Press

Full text available: pdf(209.10 KB) Additional Information: full citation, abstract, references, citings, index terms

The growing number of instances of breaches in information security in the last few years has created a compelling case for efforts towards secure electronic systems. Embedded systems, which will be ubiquitously used to capture, store, manipulate, and access data of a sensitive nature, pose several unique and interesting security challenges. Security has been the subject of intensive research in the areas of cryptography, computing, and networking. However, despite these efforts, *security is* ...

Keywords: *PDAs, architectures, battery life, cryptography, design, design methodologies, digital rights management, embedded systems, performance, security, security processing, security protocols, sensors, software attacks, tamper resistance, trusted computing, viruses*

6 Service infastructure and network management: Architecture and techniques for diagnosing faults in IEEE 802.11 infrastructure networks

Atul Adya, Paramvir Bahl, Ranveer Chandra, Lili Qiu

September 2004 **Proceedings of the 10th annual international conference on Mobile computing and networking**

Publisher: ACM Press

Full text available: pdf(303.82 KB) Additional Information: full citation, abstract, references, index terms

The wide-scale deployment of IEEE 802.11 wireless networks has generated significant challenges for Information Technology (IT) departments in corporations. Users frequently complain about connectivity and performance problems, and network administrators are expected to diagnose these problems while managing corporate security and coverage. Their task is particularly difficult due to the unreliable nature of the wireless medium and a lack of intelligent diagnostic tools for determining the cause ...

Keywords: IEEE 802.11, disconnected clients, fault detection, fault diagnosis, infrastructure wireless networks, rogue APs

7 Design challenges of virtual networks: fast, general-purpose communication

Alan M. Mainwaring, David E. Culler

May 1999 **ACM SIGPLAN Notices , Proceedings of the seventh ACM SIGPLAN symposium on Principles and practice of parallel programming PPoPP '99**, Volume 34 Issue 8

Publisher: ACM Press

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